

Work Order ID 52789

October 14, 2009 10:43:20 AM



Page 1

Item ID: D3391-021

Accept



Setup Start



Revision ID: H

Stop



Item Name: Fwd Tube Assembly

Start Date: 14/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 02/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Handwritten initials

Date:

9-10-14

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3391	Rev H								
100	Skidtubes	0.00							
	Skidtubes	0.00							
Skidtubes	Memo	0.00							
Skidtubes	Cut extrusion to 46.52 +0.010 -0.020								
110	BENDING MACHINE - SKIDTUBES	0.00							
	CNC Bend 1	0.00							
CNC Delta 100 Bender	Memo	0.00							
	Bend as per Dwg D3391 Using Bend Prog 3391021								
120	QC5- Inspect part completeness to step on W/O	0.00							
	QC	0.00							
Quality Control									

Handwritten: 9-10-14

Handwritten: SCRAP

SCRAP

Handwritten: 9-10-14

Handwritten: R70

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-021 PAR #: _____ Fault Category: Skid tubes NCR: (Yes) No DQA: / Date: 09.11.25
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: / Date: 09.11.25

NCR: <u>52789</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09.11.09	110	HEIGHT OF BEND IS 7.5" (Nom=6.8±0.25) Tube had less crushing than normal causing it to over bend (force compensated) R.C. process.	CP 09.11.09 per DS/D42	SCRAP TUBE 09.11.09	<u>/</u> 9-11-9	<u>/</u> 09.11.25	<u>/</u> 09.11.25	<u>/</u> 09.11.25

NOTE: Date & initial all entries

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Item ID: D3391-021

Revision ID: H

Item Name: Fwd Tube Assembly

Start Date: 14/10/2009 Start Qty: 1.00

Required Date: 02/11/2009 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 	HAAS CNC VERTICAL MACHINING #1	0.00							
HAAS 1 HAAS CNC vertical machine #1	Memo 1-Machine as per Folio FA590 Rev. _____ & Dwg D3391 Rev. _____ Identify as D3391-1 2-Deburr	0.00							
140 	QC2- Inspect parts off machine FAI/FAIB	0.00							
QC Quality Control	Memo	0.00							
150 	CONVENTIONAL MILLING MACHINE	0.00							
Mill Conv Conventional Milling Machine	Memo Drill X1 Aft cap as per Dwg D3391 .1875" dia	0.00							

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Start Date: 14/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 02/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160



QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

0.00

Memo

0.00

170



QC

Quality Control

QC8- Inspect parts - second check

0.00

Memo

0.00

SCRAP

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Item ID: D3391-021

Revision ID: H

Item Name: Fwd Tube Assembly

Start Date: 14/10/2009 Start Qty: 1.00

Required Date: 02/11/2009 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Setup Start
Stop
Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 	Skidtubes	0.00							
Skidtubes	Memo	0.00							
Skidtubes	1-Drill float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size) (ONLY DRILL HOLES MARKED "A") 2-Drill Remaining two holes for tow cap using DT 8819 Locating off of 1875 holes drilled in previous step 3-Open tow cap holes to .208" as per Dwg D3391 4-Open Tow Ring hole to .640" as per Dwg D3391 5- open float bag holes 0.328" and counter sink as per dwg D3391 6-Deburr & Scribe Batch number Inside aft end. 7-Transfer drill D3391-021 with D3391-023								
190 	QC5- Inspect part completeness to step on W/O	0.00							
QC Quality Control	Memo	0.00							

Work Order ID 52789

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Item ID: D3391-021

Revision ID: H

Item Name: Fwd Tube Assembly

Start Date: 14/10/2009 Start Qty: 1.00




Required Date: 02/11/2009 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200  HandFinish	Chemical Conversion Coat per QSI005 4.1	0.00							
Hand Finishing	Memo	0.00							
210  QC	QC3- Inspect Part Finish	0.00							
Quality Control	Memo	0.00							
220  Skidtubes	Skidtubes	0.00							
Skidtubes	Memo	0.00							
	1-instal spacers as per dwg D3391 A/R Magnabond 6398 batch: _____ exp. date: _____ cure time 12hrs. as per QSI015 2- grind crossbolt flush 3-back drill crossbolt if necessary								

SCRAP

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Required Date: 02/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

230



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

240



Powdercoat

Powder Coating

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

Memo

START TIME: _____

OVEN TEMPERATURE: _____

FINISH TIME: _____

0.00

250



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

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Item ID: D3391-021

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Start Date: 14/10/2009 Start Qty: 1.00

Required Date: 02/11/2009 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
259 	Skidtubes	0.00							
Skidtubes	Memo	0.00							
Skidtubes	**** install D3591-1 spacer as per DSI9364 ****								
260 	Identify as per dwg & Stock Location: _____	0.00							
Packaging	Memo	0.00							
Packaging									
280 	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

SCRAP

W 09.11.11

Picklist Print

Page 1

October 14, 2009 10:43:28 AM

Work Order ID: 52789

Parent Item: D3391-021RevH

Parent Item Name: Fwd Tube Assembly


Comments:

Start Date: 14/10/2009

Required Date: 02/11/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6013-047RevA		Manufactured	No			100	Each	63.0000	1.0000			
												
Skidtube Material												

Handwritten: 9-10-14

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
LG	63	
23935	6	
26547	57	

D3670-4-200RevA Manufactured No



SPACER

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	163	
46106	4	
47122	32	
48198	42	
48269	85	

SCRAP

Handwritten: 1

Picklist Print

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Work Order ID: 52789



Parent Item: D3391-021RevH



Parent Item Name: Fwd Tube Assembly

Start Date: 14/10/2009

Required Date: 02/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3401-041RevB		Manufactured	No			260	Each	24.0000	1.0000			
Tow Cap Assembly												

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST

24

36216

41931

46029

16

D3564-13RevD

Manufactured

No



Wearshoe

260

Each

64.0000

1.0000



Warehouse Loc Qty Loc Code
Location

Main Warehouse

FP17

52

51611

33

52059

19

Main Warehouse

ST

12

45409

2

46495

10

Picklist Print

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Work Order ID: 52789



Parent Item: D3391-021RevH



Parent Item Name: Fwd Tube Assembly

Start Date: 14/10/2009

Required Date: 02/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3566-13RevC		Manufactured	No			260	Each	41.0000	1.0000			



Gasket

Warehouse Loc Qty Loc Code
Location

Main Warehouse

FP

39

51606

Main Warehouse

ST

2

15717

1

50265

1

AN960C10L

Purchased

No



washer

260

Each

4,772.000

10.0000



Warehouse Loc Qty Loc Code
Location

OFFSHORE

FG

100

103585

100

Main Warehouse

ST

4672

112116

1009

112612

3663

Picklist Print

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Work Order ID: 52789



Parent Item: D3391-021RevH



Parent Item Name: Fwd Tube Assembly


Start Date: 14/10/2009

Required Date: 02/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN3C4A  BOLT		Purchased	No			260	Each	2,216.000	10.0000			

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST	2216	
112082	14	
112314	10	
112720	162	
112724	500	
112794	1000	
112820	500	

D3672-1RevB

Manufactured No



Phenolic Washer

260 Each 2,060.000 4.0000



Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST	1560	
39275	19	
42329	19	
47628	522	
52505	1000	

Main Warehouse

ST117	500	
51674	500	

Picklist Print

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Work Order ID: 52789



Parent Item: D3391-021RevH



Parent Item Name: Fwd Tube Assembly

Start Date: 14/10/2009

Required Date: 02/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AELS-1032-130 		Purchased	No			260	Each	0.0000	2.0000 			
INSERT AELS-1032-225 		Purchased	No			260	Each	0.0000	10.0000 			
INSERT												

SCRAP

October 14, 2009 10:43:29 AM

Shop Packet Print

Page 5

SHOP COPY

RETURN TO

ENGINEERING

2 UNCONTROLLED COPY

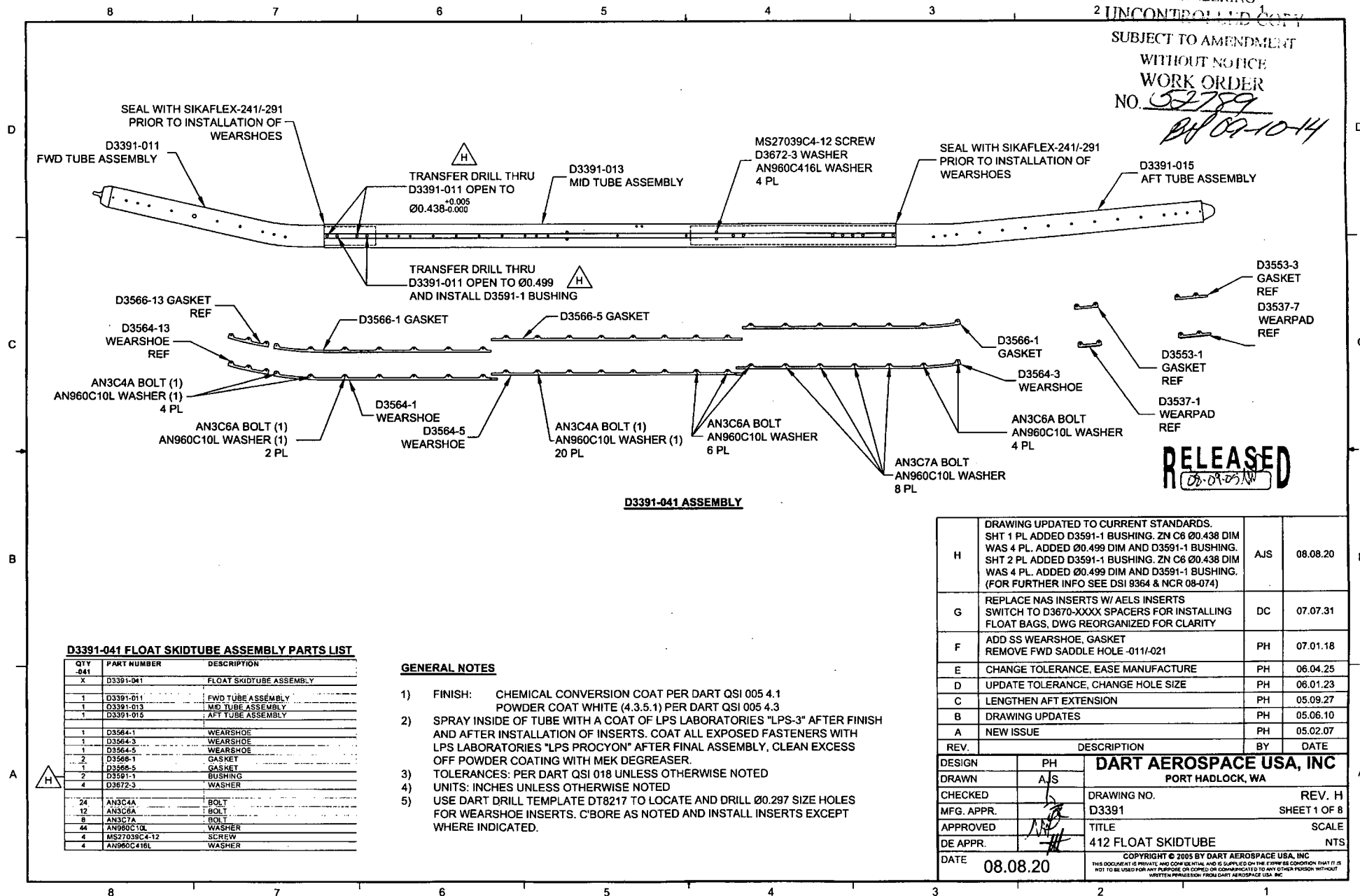
SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO. 52789

28-09-10-14

**D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

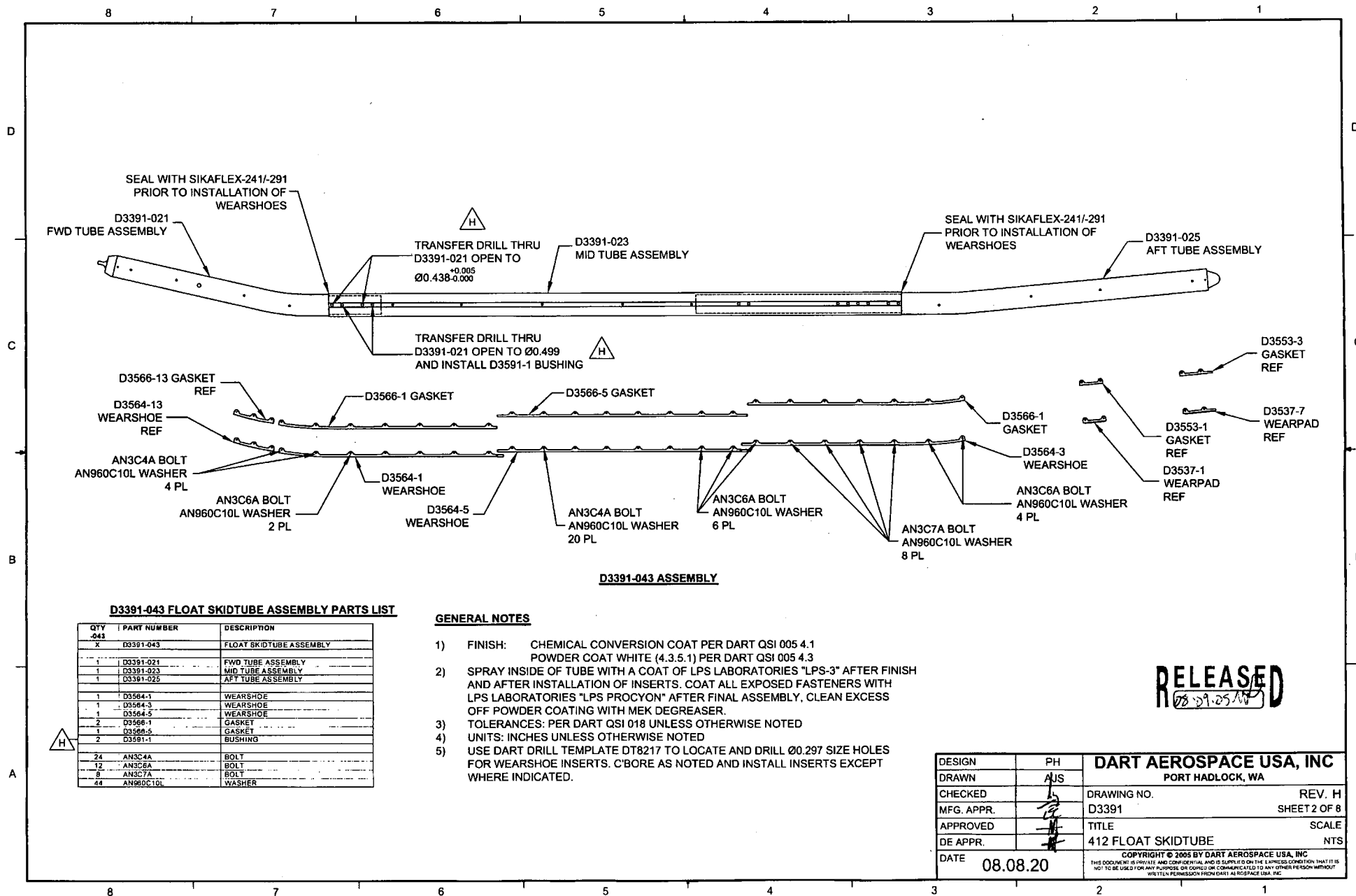
QTY	PART NUMBER	DESCRIPTION
X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
2	D3591-1	BUSHING
4	D3672-3	WASHER
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C416L	WASHER

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH
AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES
FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT
WHERE INDICATED.

H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. 2N C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. 2N C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 8364 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 1 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

W/O 52789



D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
2	D3561-1	BUSHING
24	AN3C4A	BOLT
12	AN3C6A	BOLT
9	AN3C7A	BOLT
44	AN960C10L	WASHER

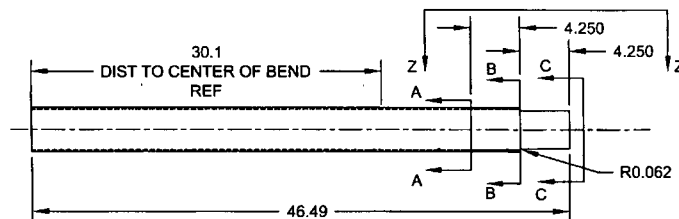
GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

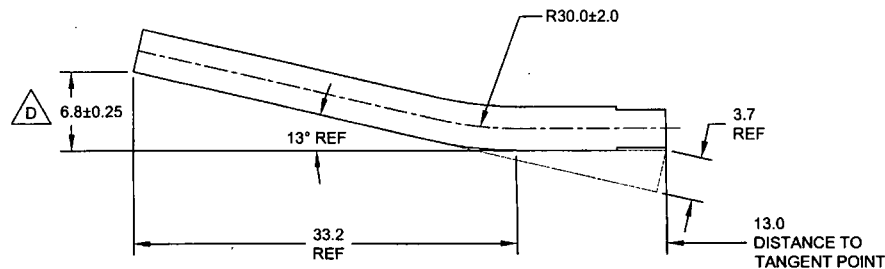
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08-09-25/10

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 2 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
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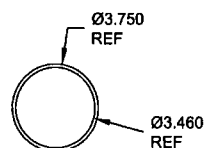
W/O 52789



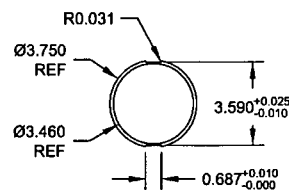
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



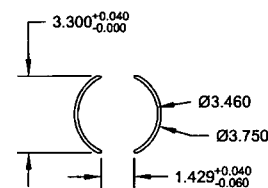
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



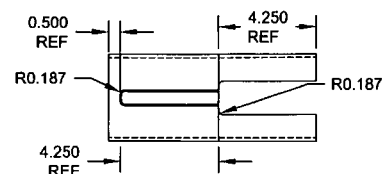
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X

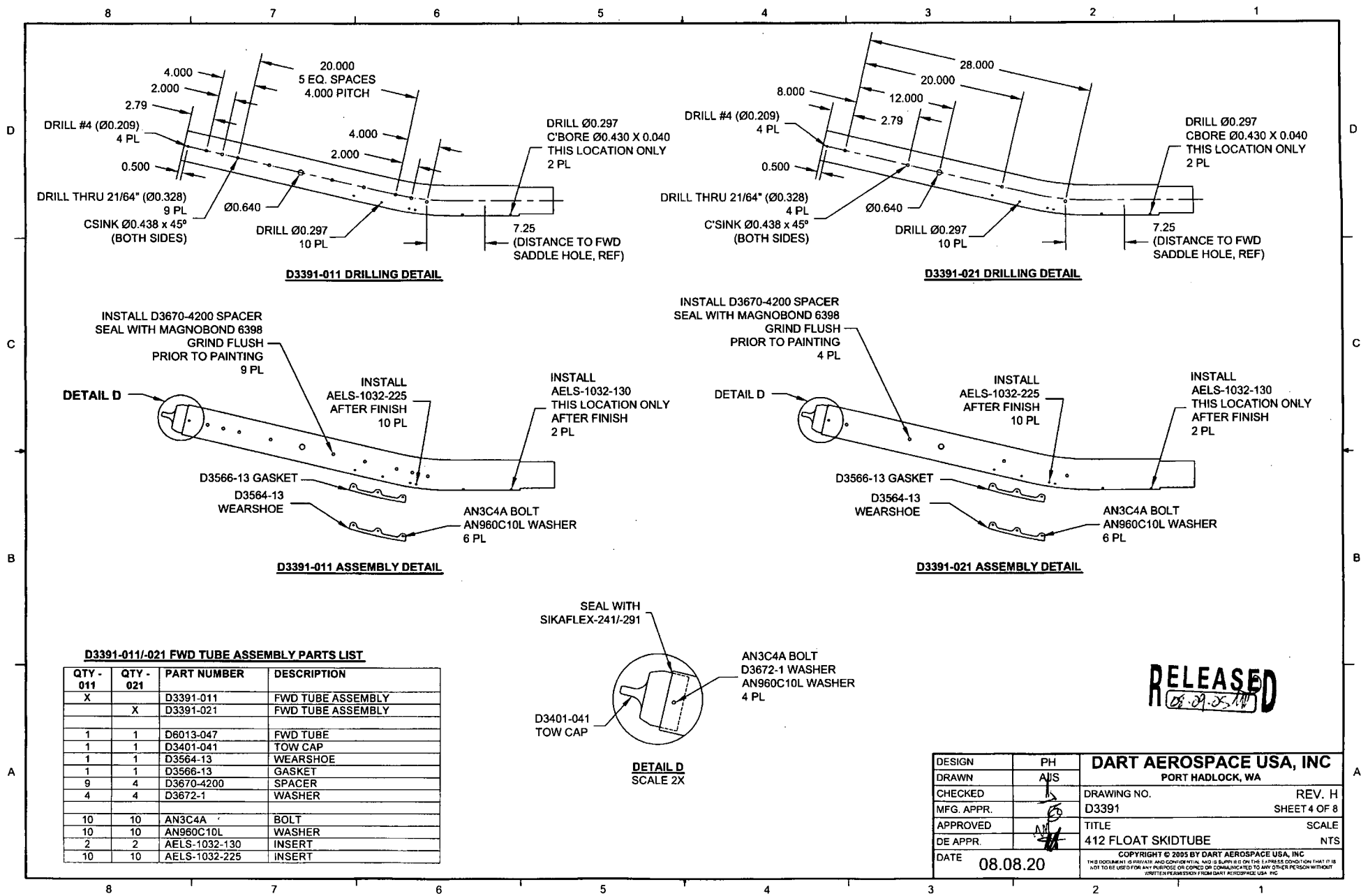


VIEW Z-Z
SCALE 2X

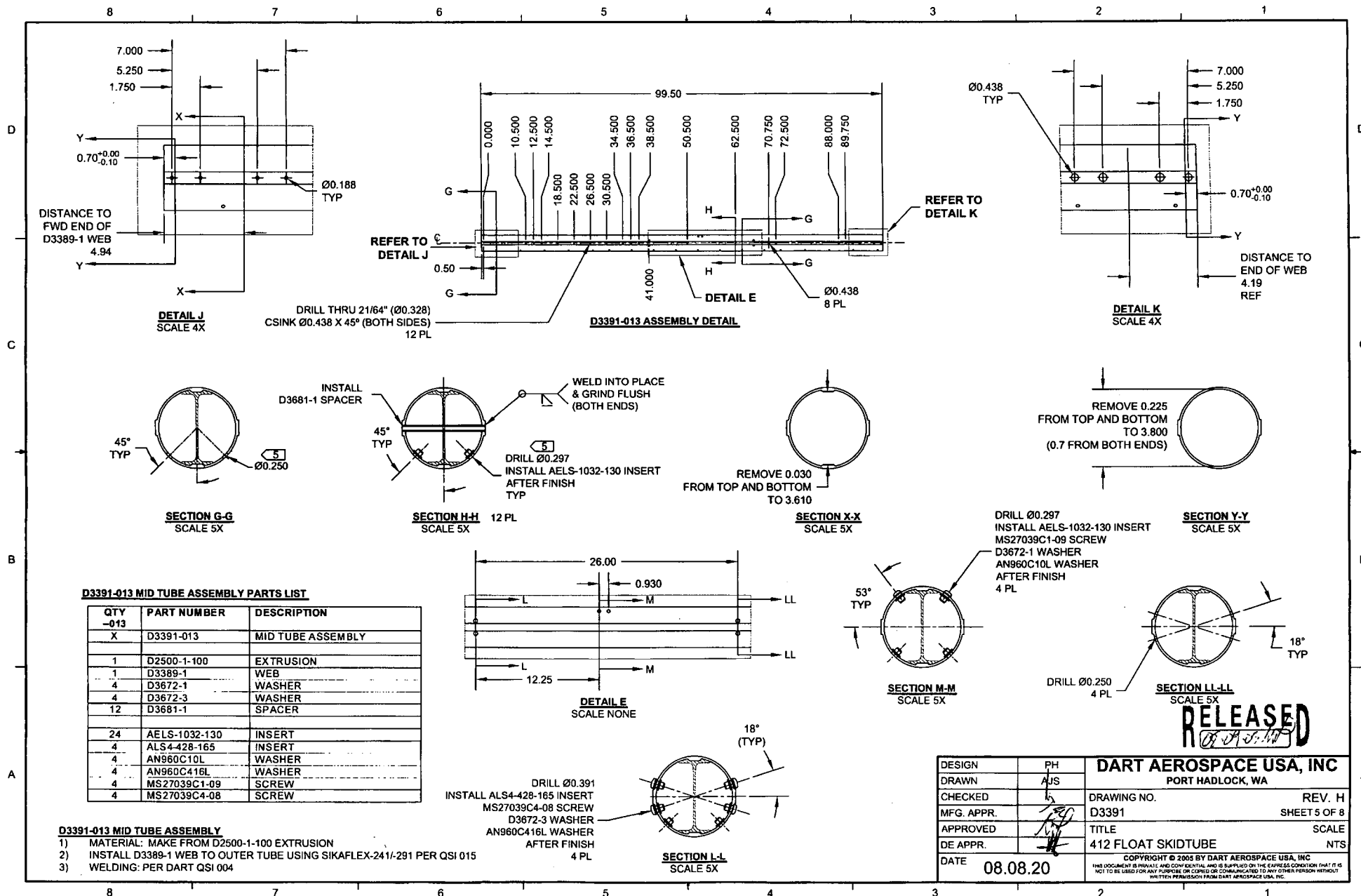
RELEASED
08-05-11

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 3 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	<small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

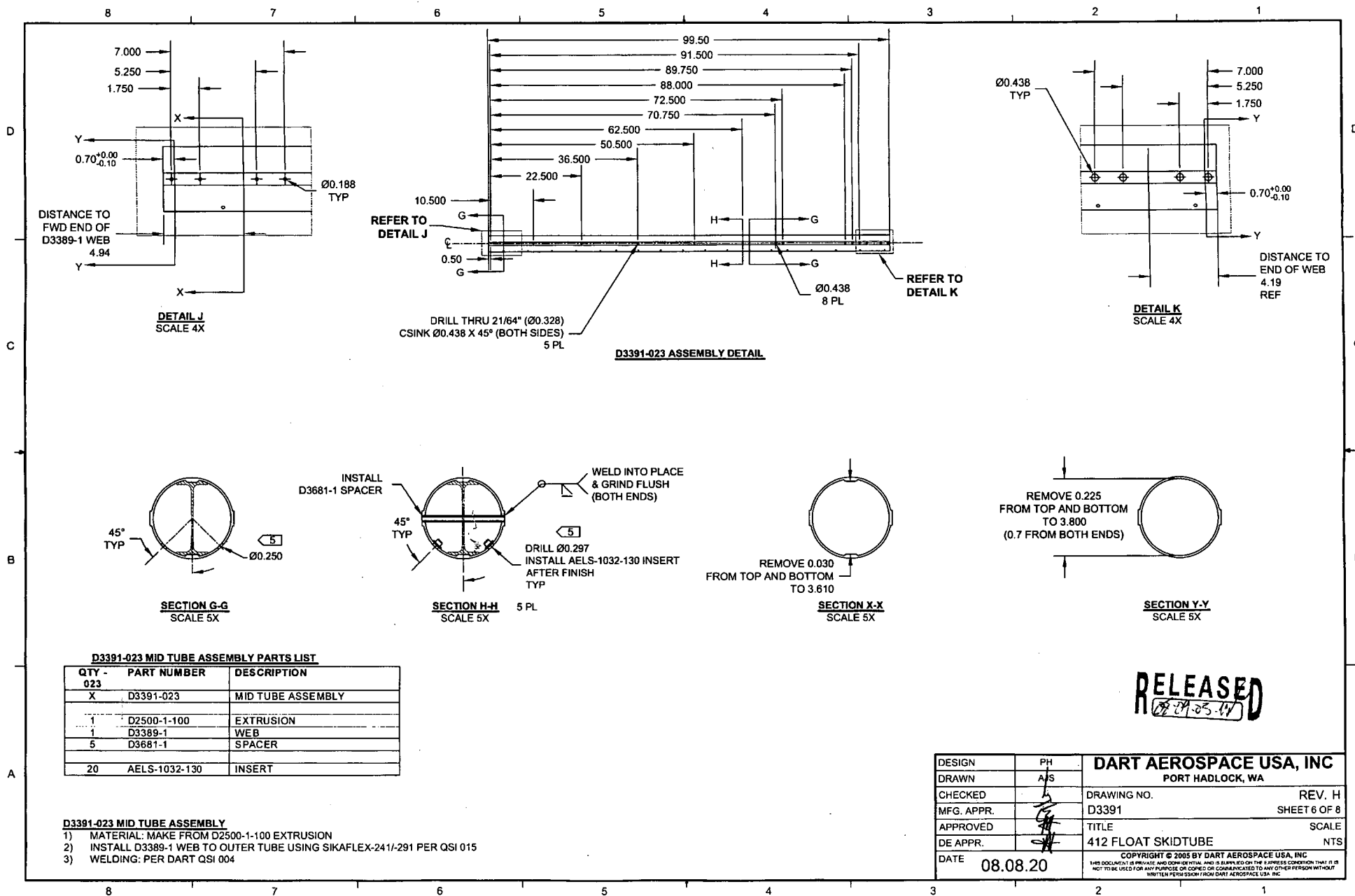
W/O 52789



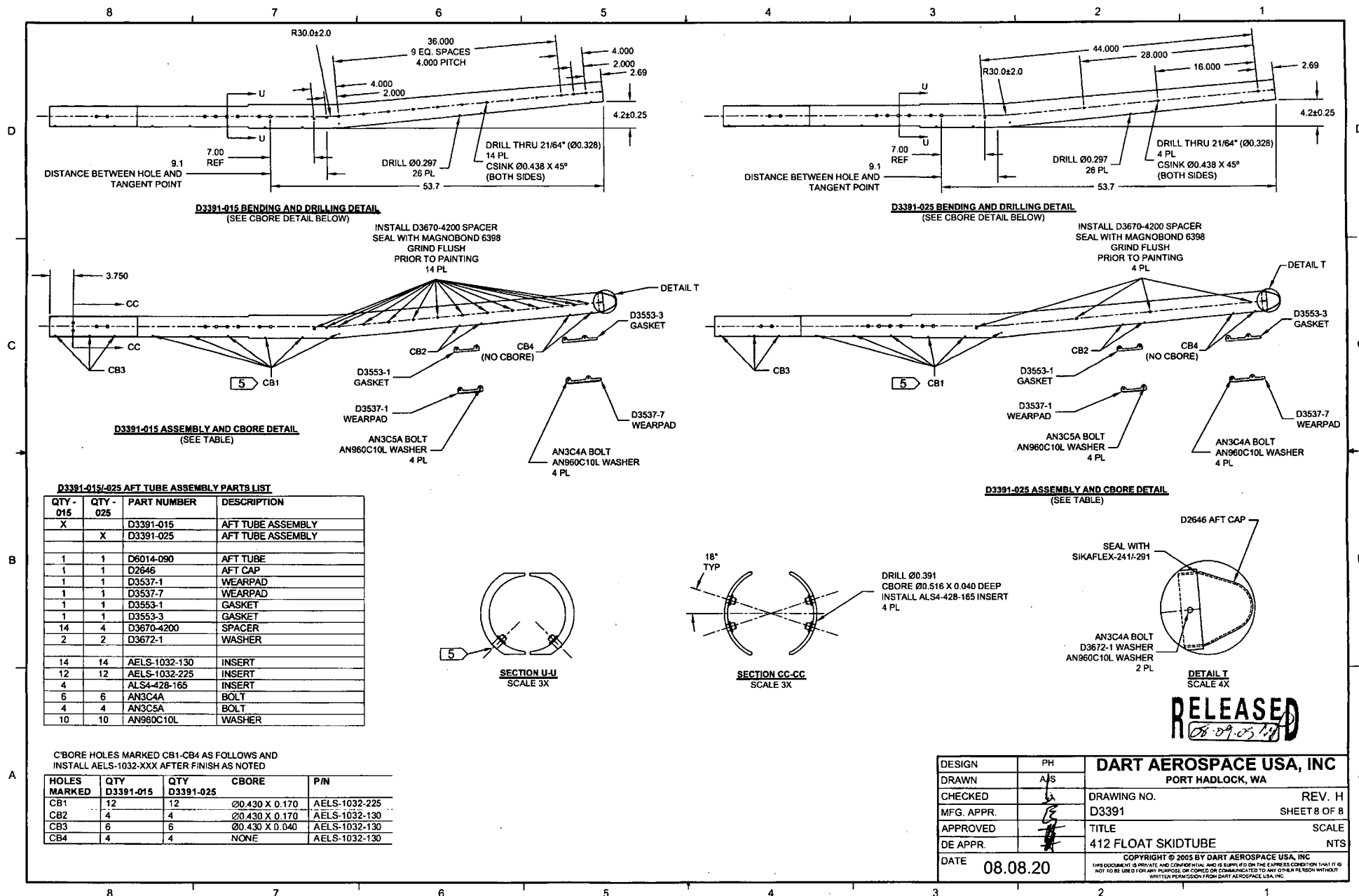
w/o 52789



w/o 52789



W/0 52789



DART AEROSPACE LTD		Work Order:	52789
Description: Float Skidtube (412)		Part Number:	D3391-1
Inspection Dwg: D3391 Rev: G		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.687	+0.010/-0.000					
3.590	+0.025/-0.010					
3.300	+0.040/-0.000					
1.429	+0.040/-0.060					
4.250	+/-0.010					
4.250	+/-0.010					

Measured by:		Audited by:		Prototype Approval:	N/A
Date:		Date:		Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	
C	07.03.21	Dimensions removed per Dwg rev. F	KJ/JLM	
D	07.11.23	Dwg Rev. updated	KJ/EC/DD	